Remarks

1) Applicant thanks the Examiner for his well considered office action and hopes that this response will further the understanding of applicant's invention.

2) Applicant draws the Examiner's attention to the fact that two information disclosure statements were filed in this case, the first filed with the initial application on March 1, 2002and the second filed on June 13, 2002. The Office acknowledged receipt of both disclosure statement. Yet only the statement filed on June 13 2002 has been indicated as considered. Applicant respectfully requests that the Office will consider the second information disclosure statement, or to confirm doing so. For the Examiner's convenience applicant encloses again copies of the IDS filed with the initial application, and the PTO form 1449 equivalent.

3) Claims 1-3, 6-8, and 10-23 are pending in the application. Applicant can celled without prejudice claims 4, 5, and 9.

4) The Office rejected all pending claims under 35 U.S.C. 102 as being anticipated by Matsumoto et al. US patent 6,172,065. Applicant would like to respectfully point out very significant differences between the present invention and the Matsumoto patent, and present arguments that clearly show why the present invention is novel over the cited art.

5) Matsumoto's remote monitoring system is intended to supervise a remotely located object in real-time, to detect an abnormality and to trace the cause of the abnormality, column 1 line 66-col. 2 line 2. To that end, a monitoring terminal is provided with a TV camera that is constantly imaging a monitored object. However, an abnormality is not detected based on the picture taken by the TV camera, but a separate sensor 17 is used for detecting any abnormality in the condition of the object, col. 2 lines 14-21. Thus, only upon detecting of abnormality by the sensors, a stream of real-time images taken by the TV camera is transmitted to a monitoring central unit that displays on a monitor the images as they are sent in, col.2 lines 21-26. Further, the remote system encodes pictures so that the resolution is constant

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(low) in normal state and higher in value in case of abnormality detected, i.e. after the sensor has triggered, col. 2 lines 27-32. An essential feature of Matsumoto is to encode pictures to high resolution only when high-resolution pictures are needed, i.e. a short period after abnormality detected by the sensor.

6) In the present invention, no separate sensors are necessary. A camera takes pictures from an object at a predetermined rate. An image, i.e. a set of pixels, is stored temporarily in the memory of the camera, thereafter image-processing software performs a given task by processing the image and then the result of the task is sent to a process control unit. Contrary to Matsumoto, the claimed invention does not require sending the video image, but rather the RESULT OF THE TASK. The result may be a single value or a value set. .

7) Further, Matsumoto teaches, column 8, 2nd and 3rd paragraph, that "control or display information such as the resolution of image and number of frames in the [remote] monitoring terminal unit 10 is inputted from the input control means 252." lines 18-21. Those means resides in the monitoring control unit. Furthermore, "control information for those changes is inputted through the controller 300" (lines 31-32) and it is" the operator [who] inputs new values". It is worth noting that the controller 300 is a hand-held remote controller; see fig. 6. Thus, the resolution or frame rate changes offered by Matsumoto require manual intervention, and Matsumoto is silent regarding automatic parameter settings by the system.

8) In the claimed invention the process control unit forms a query message comprising a code of a desired image-processing task. The process control unit is a programmable logic controller so messages are sent automatically when the logic program is running.

9) It is also important to note that Matsumoto teaches only the encoding process as being affected by sending instructions. More accurately, only resolution and frame rates of the camera may be changed.

10) The skilled in the art will recognize that the term "encode" implies decoding to enable viewing the image, and enable the Matsumoto patent to operate for its intended

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purpose. Therefore, Matsumoto provides an image decoder is provided (e.g. claim 5, 4th paragraph) in the monitoring central unit.

11) In the present invention, neither resolution nor frame rate is changed. The picture is not at all encoded because pictures taken by the camera are not sent, only the results of a task performed by the image processing software are sent in the reply message. While an apparatus operating according to the present invention may also modify such parameters, and may send images when desired, such actions are extraneous to the invention as claimed, even if they utilize common components.

12) With such clear differences between the cited patent and he present invention, applicant will now point out specifically the novelty of individual claims. Regarding claim 1, applicant respectfully point out that monitoring central unit 20 of Matsumoto can control operation of the remote monitoring terminal unit only manually by using controller 300 to input control information in control means of the monitoring central unit that forwards said information (i.e. instructions to change resolution or frame rate) to the monitoring terminal unit; col 3, lines 34-38, col. 8 3rd paragraph. Thus, *software in the monitoring central unit controls operation of the unit itself and operation of the terminal unit.* In contrast, the process control unit of the claimed invention comprises a programmable logic controller comprising a program including various tasks and whenever the program has proceeded to a point where information from the camera is needed, it sends a query message; paragraphs 25, 45. The programmable Logic Controller controls operation of an industrial process, and controlling the camera is done as needed by the smart camera controller. Contrary to Matsumoto's monitoring central unit that lacks programmable logic controller and that fails to output any control signals to an external industrial process the programmable logic controller in the claimed invention outputs control signals for controlling an industrial process external to the process control system itself; see for example fig. 7. Thus Matsumoto's software and the programmable logic control are neither comparable nor equivalents. Further, the role of the monitoring central unit of Matsumoto is to display pictures taken by the remote TV camera to be viewed by an

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operator whereas the picture taken by the video camera of the claimed invention serves as basis for calculating a result data asked in the query message.

13) Still further, instructions in Matsumoto relate only to operation of the encoder i.e. quality of pictures to be sent is changed whereas in the present invention a query message selects a specific task to be carried out by an image processing software remote to the process control unit. Therefore, the instructions according to Matsumoto are not comparable to query messages of the invention.

14) Data communication control 16 of Matsumoto only establishes communication with the monitoring central unit and monitors possible breaks in the link; col. 4, line 44, col. 6 lines 45-47. Matsumoto is silent about extracting any codes and parameter values and as to making any transformations as the adaptation program does in the claimed invention. Data communication control 16 does not receive any query message for the monitoring central unit 20 but simply establishes connection to the central unit, col. 7 lines 11-20. Finally, applicant would like to stress that Matsumoto requires transmission of whole pictures in an encoded form via the communication line whereas in the invention only requires sending calculation results said calculation task having been applied to the image data or a portion thereof.

15) Wile by virtue of being dependent from a claim as shown above, the dependent claims are clearly allowable over the cited art. However applicant further makes the following observations.

16) Regarding claim 2, applicant respectfully points out that a query message comprises a code and parameters to instruct the image processing software to perform a task, and return a response (e.g. see table 1). Claim 2 merely relates to the capacity to send a plurality of such codes, and/or parameters in a single query message, which improves the invention's efficiency. Matsumoto is silent regarding the sending of any query messages, nevertheless a plurality of codes and/or parameters in a single query.

17) Claim 3 relates to the adaptation program capacity to handle a system as claimed in claim 2, and arguments applied thereto are similarly applicable.

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18) Regarding claim 6, In Matsumoto it is the operator who may, after checking the display, elect to receive images of different quality. Then the operator uses the handheld controller 300, whereupon the encoder of the monitoring terminal changes resolution and/or frame rate. It is worth noting that the operator cannot have any detailed information about the picture or a selected area of the picture. In addition, the central monitoring unit lacks a program that, when running, could send any query messages. Therefore, applicant respectfully submits that the claim is allowable over the cited art.

19) Regarding claim 7, Matsumoto is silent about modifying the information which is received from the camera. Matsumoto speaks only about changing camera parameters that directly affect resolution and frame rate, i.e. parameters of the camera. In the invention of claim 7, the image-processing software is able the information to be received from a picture, rather than merely change the image itself (i.e. change resolution) or the frame rate. There is a clear distinction between modifying the camera operating parameter and extracting information from an image obtained by such camera, nonetheless changing such information. Moreover, as Matsumoto is silent regarding process control, and a programmable logic controller, matsumoto fails to disclose customizing the programming of such programmable logic controller. Therefore, the way and objective of changing information to be received from the picture in the present invention is not disclosed by Matsumoto.

20) Regarding claim 8, Matsumoto requires manual changing of the framerate/resolution of the camera, while the claim clearly demands automatic changes initiated by the programmable logic controller, and a corresponding capacity of the camera to identify the code and act thereupon.

21) Regarding claim 10, a field bus is a well known term, and is further described in the specifications, with typical examples such Modbus or profibus. It is a bus specifically designed for data communications, and commonly used for programmable logic devices (see paragraph 10). Matsumoto does not claim nor hints about the use of a field bus, but merely discloses a communication link. Clearly, a communication link is far more specific than a field bus, and therefore Matsumoto fasils to disclose the claimed limitation.

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22) Regarding claims 1 and 12 applicant respectfully points out that that a smart camera has been described in paragraph 9 of the present specifications. The skilled in the art will recognize that the circuitry described is an on-board computer processor or an application specific circuit that is capable of performing image processing actions under control of the software program, a well as an image sensor (such as by way of example, a CCD) that captures digital images. Matsumoto discloses a plain TV camera without image processing capacity; it stores encoded image data in a memory from which image data can be transferred to the monitoring central unit upon a detection of an abnormality. Matsumoto's communication control 16 establishes communication with the monitoring central unit, receives from it and forwards to encoding control means instructions to change resolution, and sends image data from image storage. Matsumoto's monitoring terminal unit fails to present elements as defined in claims 11-12 such as retrieving desired information from the picture, or an adaptation program responsive to codes corresponding to image processing tasks to be performed as claimed, or as claimed in claim 12 to provide a reply message in accordance with the result of the image processing action.

23) Regarding claims13-15 , the applicant respectfully refers the Examiner to comments made above regarding claims 1-3 Similarly regarding claims16-23, the applicant respectfully refers the Examiner to comments made regarding claims 1-10.

24) Applicant has made a good faith effort to address each and every point made by the Examiner, and amended the claims to more clearly define his contribution. In light of the showing and all other reasons stated above, applicant believes that the rejections and objections presented by the Examiner in the office action mailed to applicant July 7 2005 were overcome. Applicant therefore submits that the application as amended is in condition for allowance. Reconsideration and withdrawal of the rejections and objections, and allowance on all pending claims is respectfully requested.

25) Should the Examiner find any deficiency in this amendment or in the application, or should the Examiner believe for any reason, that a conversation with applicant's

... with the allowance and issuance of this application, the Examiner is